California Department of Public Health - June 2008

# Hepatitis B Quicksheet

**Clinical symptoms**
Hepatitis B virus (HBV) infection may be asymptomatic or present with a variety of signs and symptoms, including anorexia, nausea, malaise, clinical hepatitis with jaundice, or fulminant hepatitis. Development of clinical symptoms is highly age dependent with asymptomatic infection most common in young children.

Age at time of infection acquisition is the primary determinant of the risk of progression to chronic infection; 90% of perinatally infected infants develop chronic HBV infection whereas only 2% to 6% of acutely infected older children and adults progress to chronic infection.

**Mode of transmission**
HBV may be transmitted from person to person by parenteral or mucosal exposure to body fluids, particularly blood and serous fluids, of an infected person.

**Incubation period**
From 60 to 150 days (average, 90 days).

**Period of Communicability**
An individual infected with HBV should be considered infectious any time HBsAg is present in the blood. HBsAg can be found in the blood and body fluids of infected persons for 1 to 2 months before and anytime after the onset of symptoms.

**Laboratory testing**

| Test | | Use |
|---|---|---|
| HBsAg | Hepatitis B surface antigen | Identifies acute or chronic infection; this antigen is used in HBV vaccine |
| Anti-HBs | Antibody to HBsAg | Identifies immunity either due to vaccination or resolved HBV infection |
| HBeAg | Hepatitis B e antigen | Detects a high degree of HBV infectivity; correlated with high levels of HBV replication |
| Anti-HBe | Antibody to HBeAg | In chronically infected people, suggests a low viral titer and low degree of infectivity |
| Anti-HBc | Antibody to hepatitis B core antigen (HBcAg) | Identifies acute, resolved or chronic HBV infection; may be used as a marker of immunity from prior infection (not present after immunization) |
| IgM anti-HBc | IgM antibody to HBcAg | Identifies people with acute or recent HBV infection |
| HBV DNA | Hepatitis B virus DNA | Identifies a high degree of HBV infectivity; a marker of viral replication |

**CDC Case Definitions**
*Acute Hepatitis B***:**
Clinical case definition: An acute illness with: a) discrete onset of symptoms; **and** b) jaundice or elevated serum aminotransferase levels

Confirmed acute HBV case definition: A case that meets the clinical case definition and is laboratory confirmed as **either** IgM anti-HBc positive **or** HBsAg positive, IgM anti-HAV negative (if done)

*Chronic Hepatitis B:*
Clinical description: Persons with chronic HBV infection may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer. Persons with chronic infection may be asymptomatic.

Confirmed chronic HBV case definition: A case that is IgM anti-HBc negative **and** has a positive result on one of the following tests:

- HBsAg
- HBeAg
- HBV DNA

**or** is HBsAg or HBV DNA or HBeAg positive two times at least 6 months apart (any combination of these tests performed 6 months apart is acceptable)

Probable chronic HBV case definition: a case with a single HBsAg positive or HBV DNA positive or HBeAg positive lab result when no IgM anti-HBc results are available

*Perinatal Hepatitis B:*
The CDC case definition of a perinatal hepatitis B case refers to an infant found to be infected with HBV. The clinical presentation of hepatitis B infection in a newborn may range from asymptomatic to fulminant hepatitis.

Confirmed perinatal HBV case definition: HBsAg positivity in any infant aged >1-24 months who was born in the United States or in U.S. territories to an HBsAg-positive mother.

**Recommended Pre-exposure Prophylaxis**
HBV vaccine, in a 3 or 4 dose schedule, is recommended for all children beginning at birth. In settings where a high proportion of adults are likely to have risk factors for HBV infection (e.g., facilities for STI treatment, HIV testing and treatment, correctional, etc), all unimmunized adults should receive HBV immunization given in a 3-dose series.

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Booster doses of hepatitis B vaccine are not recommended for adults and children with normal immune status.

Routine HBV vaccination is recommended for all health care and public safety workers at risk for percutaneous or mucosal exposure to blood or blood-contaminated body fluids. OSHA standards require that all employers offer the 3-dose vaccine series free to all employees who are exposed to blood and other potentially infectious materials as a part of their job duties.

**Recommended Post-exposure Prophylaxis**

*Household and sexual exposure*

Susceptible household and sexual contacts of HBsAg-positive people should be immunized. Prophylaxis with HBIG for unimmunized contacts is not indicated unless they have a discrete, identifiable exposure to the index patient. Infants <12 months of age who have close contact with an HBV-infected primary caregiver and who have received only one dose of vaccine should be administered the second dose of vaccine if the interval is appropriate or HBIG if immunization is not due. Infants that have not previously received any vaccine doses should receive HBIG (0.5 mL) and start the vaccine series.

*Perinatal exposure*

All infants born to HBsAg-positive mothers, including preterm and low birth weight infants, should receive a single dose of single-antigen HBV vaccine and HBIG (0.5 mL) within 12 hours of birth and complete the vaccine series. For infants weighing ≤2000 grams at birth, the birth dose of HBV vaccine should not be counted towards completion of the vaccine series. All infants born to HBsAg-positive women should also receive postvaccination serologic testing for HBsAg and anti-HBs after completion of the vaccine series and at 9-15 months of age to ensure they are immune and not infected. If they are not found to be immune, the vaccine series should be repeated and the infant retested for immunity 1-2 months later. Persons who don't respond after being revaccinated with a second series are unlikely to respond to additional doses of vaccine.

*Exposure to blood or body fluids*

Management of people with a discrete, identifiable percutaneous or mucosal exposure to blood or body fluids (e.g., needlestick, laceration or bite) includes consideration of the HBsAg status of the source of the exposure and the HBV immunization and response status of the exposed person. See the table below for details.

**Investigation and Reporting Guidelines**

All cases of hepatitis B are reportable using a CMR.

*Acute Hepatitis B:* For acute cases <19 years and ≥65 years of age, the Immunization Branch requests a CDC Viral Hepatitis Case Report Form in addition to a CMR.

*Chronic Hepatitis B:* Due to the high volume of HBsAg positive reports, many local health jurisdictions are unable to investigate chronic HBV cases. Priority should be given to distinguishing acute cases in children <19 and adults ≥65 years of age and identifying pregnant HBsAg-positive women.

*Perinatal Hepatitis B:* In addition to the CMR, perinatal hepatitis B cases should also be reported to the Perinatal Hepatitis B Prevention Program using a CDC Viral Hepatitis Case Report Form.

**Case Report Forms**

Additional HBV information and case report forms can be found on the Immunization Branch website at: http://ww2.cdph.ca.gov/HealthInfo/discond/Pages/HepatitisB.aspx

**Recommendations for Hepatitis B Prophylaxis After Percutaneous Exposure to Blood that Contains or Might Contain HBsAg[1]**

| | Treatment when source is | | |
|---|---|---|---|
| **Exposed Person** | **HBsAg Positive** | **HBsAg Negative** | **Unknown or Not Tested** |
| Unimmunized | Administer HBIG[2] (1dose) and initiate HBV vaccine series | Initiate HBV vaccine series | Initiate HBV vaccine series |
| Previously Immunized | | | |
| Known Responder | No treatment | No treatment | No treatment |
| Known Nonresponder | HBIG (1 dose) **and** initiate reimmunization or HBIG (2 doses) | No treatment | If known high-risk source, treat as if source were HBsAg positive |
| Response Unknown | Test exposed person for anti-HBs[4]<br>• If inadequate, HBIG (1 dose) **and** vaccine booster dose[5]<br>• If adequate, no treatment | No treatment | Test exposed person for anti-HBs[4]<br>• If inadequate, vaccine booster dose[5]<br>• If adequate, no treatment |

[1]Centers for Disease Control and Prevention. Updated US Public Health Service guidelines for the management of occupational exposures to HBV, HCV and HIV and recommendations for postexposure prophylaxis. MMWR Recomm Rep. 2001;50(RR-11):1-52.
[2]Dose of HBIG, 0.06 mL/kg, intramuscularly.
[3]The option of giving 1 dose of HBIG (0.06 mL/kg) and reinitiating the vaccine series is preferred for nonresponders who have not completed a second 3-dose vaccine series. For people who previously completed a second vaccine series but failed to respond, 2 doses of HBIG are preferred, 1 dose as soon as possible after exposure and the second 1 month later.
[4]Adequate anti-HBs is ≥10 mIU/mL.
[5]The person should be evaluated for antibody response after the vaccine booster dose. For people who receive HBIG, anti-HBs testing should be performed when passively acquired antibody from HBIG no longer is detectable (e.g., 4—6 months); for people who did not receive HBIG, anti-HBs testing should be performed 1 to 2 months after the vaccine booster dose. If anti-HBs is inadequate (>10mIU/mL) after the vaccine booster dose, 2 additional doses should be administered to complete a 3-dose reimmunization series.